

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 08-230961

(43)Date of publication of application : 10.09.1996

(51)Int.Cl.

B65D 83/76
B05B 11/06
// B05B 1/02

(21)Application number : 07-316086

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(22)Date of filing : 08.11.1995

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(30)Priority

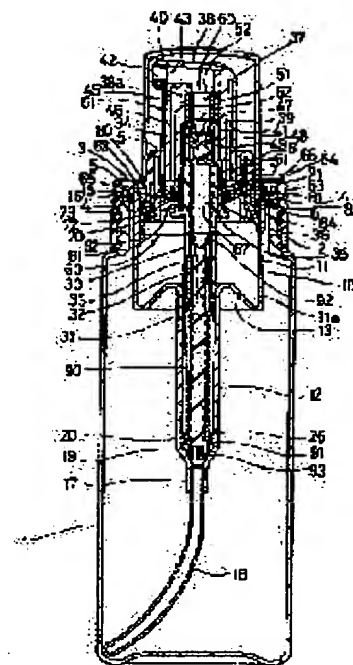
Priority number : 06332015 Priority date : 12.12.1994 Priority country : JP

(54) PUMP CONTAINER FOR DISCHARGING BUBBLE

(57)Abstract:

PURPOSE: To generate bubbles having a diameter suitable for application by forming a foaming member by extending a foaming net across an upper face of a short tube and forming a tube hole part for fitting the foaming member into such a length that a plurality of foaming members can be successively fitted.

CONSTITUTION: A cylinder member 10 having a large diameter cylinder 11 on an upper half and a small diameter cylinder 12 on a lower half is supported by an upper end of a neck 2 of a container body 1 and a top wall of a mounting tube 3 with a flange 14 interposed, and tubelike pistons 60,31 are fitted respectively into the cylinders 11, 12. By pushing down a pushdown head 37 with a head of an operating member 30, liquid in the small diameter cylinder 12 is led through a stem 33 while air in the large diameter cylinder 11 is led between the piston 30 and a stem fitting tube 39, and bubbles are generated when both the liquid and the air pass through a foaming member 30 and discharged from a nozzle 40. The foaming member 50 is formed by extending a foaming net 52 across an upper face of a short tube 51, and a plurality of the foaming members 50 are fitted vertically overlyingly in tube holes, thereby allowing bubbles of a required diameter to be generated.



LEGAL STATUS

[Date of request for examination]

29.11.2001

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

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CLAIMS

[Claim(s)]

[Claim 1] While screwing a peripheral wall 4 in the bottle object 1 which stands up a top neck part 2, and its top neck part external surface Make an outward flange 14 pinch by the wearing cylinder 3 which hangs the guidance cylinder 6 from the opening periphery of the center of a top wall, and the above-mentioned top neck part upper limit and the top wall of a wearing cylinder, and hang into a bottle object. The cylinder part material 10 which uses the major-diameter cylinder 11 and half the bottom as the minor diameter cylinder 12 for Johan, It has the actuation member 30 which is made to carry out fitting of the tubed pistons 60 and 31 of a major diameter and a minor diameter into size both the above-mentioned cylinders, and stands up in the upper part energization condition. This actuation member While attaching the stem fitting cylinder 39 lower part which is inserted into the guidance cylinder 6 and hangs from the push-down head 37 with a nozzle 40 to the upper limit section external surface of the stem 33 which stands up from the minor diameter tubed piston 31 Fitting of the small stroke vertical movement of the major-diameter tubed piston 60 is made free to stem up external surface, and into the upper part of a stem fitting cylinder, the foaming member 50 is made to fix and it forms. With the actuation member push down For a stem 33, the air in a major-diameter cylinder between the major-diameter tubed piston 60 and the stem fitting cylinder 39, and stem external surface again, respectively a connoisseur [the liquid in a minor diameter cylinder] Furthermore, both foam by foaming member 50 passage, and it is emitted from a nozzle 40. It passes along the 1st open air intake valve 73 through which the liquid in a bottle object passed in the minor diameter cylinder by the actuation member rise and which was formed in the gap and major-diameter tubed piston of a guidance cylinder and a stem fitting cylinder. The open air that an inflow is possible into a major-diameter cylinder Moreover, nothing, Moreover, the 2nd open air intake valve formed by negative pressure-ization in a bottle object between the above-mentioned gap, and a guidance cylinder and a major-diameter cylinder peripheral wall, In the pump container for bubble emission whose inflow the open air enabled into the bottle object through between the stoma 16 drilled in the outward flange of cylinder part material, and a top neck part of the bottle object and a major-diameter cylinder While stretching and forming the foaming network 52 in the top face of the short cylinder 51, the above-mentioned foaming member 50 The pump container for bubble foaming characterized by having been long up and down in the tubiform hole for these foaming member fitting, having formed two or more foaming member in the die length which can fit in up and down in piles, and making an unit or two or more foaming members attach in the state of forward or a handstand into the tubiform hole.

[Claim 2] To each pars intermedia with the outer case 62 which carried out fitting of the major-diameter tubed piston 60 to the container liner 61 which carried out fitting to stem 33 external surface to the major-diameter cylinder inside A container liner 61 side is high, and connects and forms shape Itabe of a horizontal of the vertical both ends of the cylindrical-with stairway flange 63 with a low outer case 62 side. The 1st open air absorption hole 64 is drilled in a part for the flange close to a container liner 61. To the method of the outside of ascending, the elastic outward-flange-like wall 72 of the thin meat which used the point as the heavy-gage part is projected from short cylinder 71 lower limit in which it was made to attach to the container liner 61 partial external surface of the major-diameter tubed piston of flange 63 lower part. In respect of the horizontal-like plate subordinate of the above-mentioned cylindrical-with stairway flange who did the pressure welding of this outward-flange-like wall point top face to this elastic outward-flange-like wall The pump container for bubble emission according to claim 1 which stands up from the horizontal plate section inner circumference in which the 1st open air intake valve 73 is formed and, which the elastic outward-flange-like wall 72 above-mentioned point touches, and is characterized by attaching two or more projected parts 65 to the short cylinder 71 above-mentioned external surface and the perpendicular cylinder

part inside which counters.

[Claim 3] Major-diameter cylinder peripheral wall 11a Set a small gap between insides and the elastic reverse skirt-board-like section 82 is projected to the method of the outside of a top from the cylinder part 81 lower part to which it hung and fitting of the top wall of the wearing cylinder 3 to the stop cylinder 8 was carried out to this stop cylinder external surface. Major-diameter cylinder peripheral wall 11a to which the pressure welding of the point of this elastic reverse skirt-board-like section 82 and this reverse skirt-board-like section was carried out Pump container for bubble emission according to claim 1 or 2 characterized by forming the 2nd open air intake valve 80 by the up inside.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the pump container for bubble emission which installs the cylinder part material which used the major-diameter cylinder for air, and half the bottom as the minor diameter cylinder for liquids for Johan into a bottle object, is made to carry out fitting of the tubed piston of a major diameter and a minor diameter into both the cylinders of the above-mentioned size, and stands up an actuation member from the inside of a cylinder.

[0002]

[Description of the Prior Art]

[Problem(s) to be Solved by the Invention] For example, the international public presentation number W092 / pump container for bubble emission of No. 08657 is known. This container the lower part to the air cylinder of a major diameter for the upper part in the liquid cylinder of a minor diameter While making an air cylinder upper limit side seal with a lid and carrying out vertical installation immobilization into a bottle object, the cylinder part material which formed, respectively and prepared the air supply valve into a bottle object in the air cylinder upper part The diameter stem of both [size] from the diameter piston of both [size] which carried out fitting into both the above-mentioned cylinders Make the minor diameter stem upper part attach into a major-diameter stem, and a lid is made to penetrate a major-diameter stem, and it stands up, upper part energization of the actuation member which fitted the push-down head with a nozzle into major-diameter stem upper limit is carried out, and it prepares, and it depresses in the condition of having resisted energization and having been depressed, and a head part is prepared in a cover plate part possible [screwing].

[0003] Although the liquid passing through the inside of a minor diameter stem and the air passing through between size both stems flow into the mixing chamber formed between the foaming members in a fitting cylinder which depress the above-mentioned conventional container to coincidence mostly with the head push down and the discharge valve of minor diameter stem upper limit circles, and hang from a head The bubble which the air which enters in a mixing chamber at the beginning runs short of air contents compared with the amount of liquids which enters in a mixing chamber since compression is not fully made, therefore is emitted at the beginning had the fault from which the foaming becomes imperfect.

[0004] It became clear that there were some troubles that invention which removed the above-mentioned fault by preparing later than the airstream close into the above-mentioned mixing chamber so that a liquid may flow should be improved in addition also in the pump container for bubble emission concerning this invention although these people had Japanese Patent Application No. No. 136411 [six to] and it applied.

[0005] Although one of them is a foaming member and the network for foaming was stretched on vertical both sides thru/or the whole surface of a short cylinder which carries out fitting into the upper part of the stem fitting cylinder which hangs from the above-mentioned push-down head conventionally If it is made to foam by the above-mentioned container use and liquid use is carried out, a fluidity falls compared with the case where a liquid is used as it is, and since that a liquid is therefore spilt out vainly has few advantages, use in the field which was not used conventionally is also taken into consideration.

[0006] The bubble conventionally emitted from the pump container for bubble emission may not need that a bubble is a minor diameter so much if it is a detergent for vessel spraying, for example when the use field is expanded as mentioned above although to be a small bubble with thin texture was desired, but it may be suitable for an application that a bubble diameter is size further depending on the case. Although it could set in the network for foaming stretched mainly to the above-mentioned foaming member, the bubble diameter was that for which it is necessary to prepare many foaming members which differ in the bubble diameter to

which it is foamed, in order to make the above-mentioned pump container for bubble emission correspond to various applications, respectively, since only the piece carried out fitting of the foaming member conventionally.

[0007] Moreover, if it is in previous statement Japanese Patent Application No. No. 136411 [six to] A cylinder part is made to attach to half the bottom of the container liner of the major-diameter tubed piston to which fitting of the 1st open air intake valve which carries out an air suction system into a major-diameter cylinder was carried out to stem up external surface. From this cylinder part upper limit, carry out the pressure welding of the elastic skirt-board-like section tip made to project to the method of the outside of the bottom to the suspension wall inside which the flange of the above-mentioned major-diameter tubed piston has, and it is formed in it. The guidance cylinder inside which hangs from the center-section puncturing periphery of the top wall of the wearing cylinder to which fitting of the 1st open air inhalation way to this 1st open air intake valve was carried out to the top neck part of the bottle object, It formed into this guidance cylinder between the stem fitting cylinder external surface of the push-down head which hangs from the upper part, and by the stoma drilled to a part for the container liner flank of the above-mentioned major-diameter tubed piston flange.

[0008] However, when it forms such, from cylinder part upper limit, the elastic skirt-board-like section will be projected to the method of the outside of the bottom, and the valve element of the 1st open air intake valve will be formed in it. Occasionally it was careless, and since fitting of the upper and lower sides of that valve element may have been conversely carried out to half the bottom of a major-diameter tubed piston container liner, then the check valve effectiveness of imperfect ***** extent would be produced also in this case, there was a fault for which that discovery is not easy.

[0009] Previous statement Japanese Patent Application No. No. 136411 [six to] further moreover, the valve element of the 2nd open air intake valve for the negative pressure-ized prevention in a bottle object by liquid reduction Carry out the elastic pressure welding of the elastic reverse skirt-board-like wall tip which projects from the opening edge of a wearing cylinder top wall to the method of the outside of a top through an outward-flange-like wall from the cylinder part lower limit made to attach in the hanging guidance cylinder external surface to the up internal surface of a major-diameter cylinder, and it is formed in it. Moreover, the stoma is drilled for the 2nd open air inhalation way which has the 2nd intake valve in the outward-flange base of cylinder part material upper limit, and it formed by making each gap between a previous statement guidance cylinder and a stem fitting cylinder and between a top-neck-part-of-the-bottle-object inside and major-diameter cylinder external surface open for free passage via this stoma.

[0010] However, when in such a configuration the air in a bottle object expanded and it high-pressure-ized by atmospheric temperature rise, high-pressure air might enter into the outward-flange headroom of the 2nd open air absorption valve element through the stoma of the above-mentioned outward-flange base, and the valve element might secede from the guidance cylinder of a wearing cylinder by the high-pressure-ization.

[0011] It is this invention's preparing the tubiform hole of the stem fitting cylinder upper part to which fitting of the foaming member is carried out for a long time up and down, and enabling it to fit in an unit or two or more foaming members into the tubiform hole, and changing the foaming member into a handstand condition. Even if there is reverse wearing of the 1st open air absorption valve element with the above-mentioned purpose for the purpose of preparing by the fraction and the foaming member of the same structure comparatively so that much foaming of a bubble diameter may be obtained In this case, even if it is preparing so that compression of the major-diameter cylinder for air may become impossible, and having enabled it to discover reverse wearing of that valve element immediately and the inside of a bottle object high-pressure-izes by atmospheric temperature rise further The container which it is easy to make it the pump container for bubble emission of a different bubble diameter corresponding [thus] to the receipt liquid and the application for the purpose of having prepared so that the 2nd absorption valve element might not separate by the high-pressure-ization, and moreover cannot break down easily is proposed.

[0012]

[Means for Solving the Problem] While screwing a peripheral wall 4 in the bottle object 1 which stands up a top neck part 2 as the 1st means, and its top neck part external surface Make an outward flange 14 pinch by the wearing cylinder 3 which hangs the guidance cylinder 6 from the opening periphery of the center of a top wall, and the above-mentioned top neck part upper limit and the top wall of a wearing cylinder, and hang into a bottle object. The cylinder part material 10 which uses the major-diameter cylinder 11 and half the bottom as the minor diameter cylinder 12 for Johan, It has the actuation member 30 which is made to carry out fitting of the tubed pistons 60 and 31 of a major diameter and a minor diameter into size both the above-mentioned cylinders, and stands up in the upper part energization condition. This actuation member

While attaching the stem fitting cylinder 39 lower part which is inserted into the guidance cylinder 6 and hangs from the push-down head 37 with a nozzle 40 to the upper limit section external surface of the stem 33 which stands up from the minor diameter tubed piston 31. Fitting of the small stroke vertical movement of the major-diameter tubed piston 60 is made free to stem up external surface, and into the upper part of a stem fitting cylinder, the foaming member 50 is made to fix and it forms. With the actuation member push down For a stem 33, the air in a major-diameter cylinder between the major-diameter tubed piston 60 and the stem fitting cylinder 39, and stem external surface again, respectively a connoisseur [the liquid in a minor diameter cylinder] Furthermore, both foam by foaming member 50 passage, and it is emitted from a nozzle 40. It passes along the 1st open air intake valve 73 through which the liquid in a bottle object passed in the minor diameter cylinder by the actuation member rise and which was formed in the gap and major-diameter tubed piston of a guidance cylinder and a stem fitting cylinder. The open air that an inflow is possible into a major-diameter cylinder Moreover, nothing, Moreover, the 2nd open air intake valve formed by negative pressure-ization in a bottle object between the above-mentioned gap, and a guidance cylinder and a major-diameter cylinder peripheral wall, In the pump container for bubble emission whose inflow the open air enabled into the bottle object through between the stoma 16 drilled in the outward flange of cylinder part material, and a top neck part of the bottle object and a major-diameter cylinder While stretching the foaming network 52 on the top face of the short cylinder 51 and forming the above-mentioned foaming member 50 in it, it was long up and down in the tubiform hole for these foaming member fitting, two or more foaming member was formed in the die length which can fit in up and down in piles, and an unit or two or more foaming members were made to attach in the state of forward or a handstand into the tubiform hole.

[0013] As the 2nd means, it sets in the configuration of the 1st means of the above. The major-diameter tubed piston 60 To each pars intermedia with the outer case 62 which carried out fitting to the container liner 61 which carried out fitting to stem 33 external surface to the major-diameter cylinder inside A container liner 61 side is high, and connects and forms shape Itabe of a horizontal of the vertical both ends of the cylindrical-with stairway flange 63 with a low outer case 62 side. The 1st open air absorption hole 64 is drilled in a part for the flange close to a container liner 61. To the method of the outside of ascending, the elastic outward-flange-like wall 72 of the thin meat which used the point as the heavy-gage part is projected from short cylinder 71 lower limit in which it was made to attach to the container liner 61 partial external surface of the major-diameter tubed piston of flange 63 lower part. In respect of the horizontal-like plate subordinate of the above-mentioned cylindrical-with stairway flange who did the pressure welding of this outward-flange-like wall point top face to this elastic outward-flange-like wall It stood up from the horizontal plate section inner circumference in which the 1st open air intake valve 73 is formed and which the elastic outward-flange-like wall 72 above-mentioned point touches, and two or more projected parts 65 were attached to the short cylinder 71 above-mentioned external surface and the perpendicular cylinder part inside which counters.

[0014] As the 3rd means, it sets in the configuration of the 1st means of the above, or the configuration of the 2nd means. Major-diameter cylinder peripheral wall 11a Set a small gap between insides and the elastic reverse skirt-board-like section 82 is projected to the method of the outside of a top from the cylinder part 81 lower part to which it hung and fitting of the top wall of the wearing cylinder 3 to the stop cylinder 8 was carried out to this stop cylinder external surface. Major-diameter cylinder peripheral wall 11a to which the pressure welding of the point of this elastic reverse skirt-board-like section 82 and this reverse skirt-board-like section was carried out By the up inside, the 2nd open air intake valve 80 was formed.

[0015]

[Function] Like [according to the experiment] the operation gestalt which drawing 3 shows from drawing 1 , into the foaming member fitting cylinder 45 Upwards, the foaming member 50 which stretched the foaming network 52 to short cylinder 51 top face moreover, when the foaming member prepared similarly is made to do a handstand and it is made to attach below, respectively Can obtain foaming of a fine equal bubble, and like drawing 4 , when fitting only of the one foaming member 50 which has the foaming network 52 on the short cylinder inferior surface of tongue by handstand is carried out into the lower part of the foaming member fitting cylinder 45 Foaming of inside **** could be obtained, and when fitting only of the one foaming member 50 which stretched the foaming network 52 to the short cylinder upper limit side was carried out into the upper part of the above-mentioned fitting cylinder 45 like drawing 5 , foaming of a major-diameter bubble was able to be obtained. Moreover, it is moving the foaming member 50 fitting location of drawing 4 upwards one by one, and the bubble diameter was able to be gradually changed in the range of the bubble diameter by the drawing 4 operation gestalt, and the bubble diameter by the drawing 5

operation gestalt by moving the foaming member 50 of drawing 5 below one by one from the above-mentioned fitting cylinder upper limit. **** 42 was made to attach in a nozzle tip, and the bubble diameter emitted to this container liner in each above-mentioned operation gestalt by stretching the network 43 for foaming was able to be minor-diameter-sized still more slightly, and was able to be equated.

[0016] Although the 1st open air intake valve 73 descends in the case of actuation member 30 push down, blockaded and the inside of a major-diameter cylinder is pressurized as drawing 2 shows If fitting of the 1st open air absorption valve element 70 is carried out in the state of the handstand, since it will become impossible the valve blockading the elastic outward-flange-like wall 72 of the valve element in contact with the projected parts 65 and 65 of the perpendicular cylinder part inside of the major-diameter tubed piston 60, The pressurization in the above-mentioned major-diameter cylinder becomes impossible, for the reason, there is no response of the pressurization, and, therefore, the fault of the 1st open air absorption valve element can be discovered immediately.

[0017] Since the 2nd open air absorption valve element 80 has carried out fitting of the cylinder part 81 to stop cylinder 8 external surface which sets a small gap between the 11 round Kabeuchi sides of major-diameter cylinders, and hangs from the top wall of the wearing cylinder 3 to it Even if high-pressure air enters through the stoma 16 drilled in the outward-flange end face of cylinder part material in the gap of the cylinder part 81 above-mentioned upper part and the major-diameter cylinder upper part by high-pressure-ization in a bottle object by atmospheric temperature rise The gap is narrow, therefore, is the passing thing which is way ** done stop cylinder 8 about the above-mentioned cylinder part, and can prevent easily omission of the 2nd open air absorption valve element 80.

[0018]

[Embodiment of the Invention] 1 is a bottle object which stands up a top neck part 2.

[0019] The peripheral wall 4 of the wearing cylinder 3 is made to screw to the above-mentioned top neck part external surface. This wearing cylinder hangs the above-mentioned peripheral wall from top wall 5 periphery, and hangs the guidance cylinder 6 which carries out opening of the top wall center section, and has an open air incurrent canal inside from the opening periphery. The top wall 5 leaves the periphery section, **** a direction part through the standing-up cylinder 7, and has hung the stop cylinder 8 from the standing-up cylinder lower limit.

[0020] 10 is cylinder part material, connects [Johan] both cylinders, such as it, for the major-diameter cylinder 11 for air, and half the bottom by the flange 13 as a minor diameter cylinder 12 for liquids, and is peripheral wall 11a of a major-diameter cylinder. The outward flange 14 attached to upper limit is made to pinch in the upper limit side of a top neck part of the bottle object, and the top wall periphery section of the wearing cylinder 3. From the outward-flange periphery, the gap formation cylinder 15 is stood up, and the stoma 16 is drilled in the outward-flange end face section. In addition, the above-mentioned gap formation cylinder 15 is made to pinch in the small cylinder which hangs from the wearing cylinder top wall periphery section, and the upper part of a wearing cylinder peripheral wall. A minor diameter cylinder lower limit is minor-diameter-sized in the shape of a taper to the method of the inside of the bottom, and is sucked up from the lower limit, hangs, sucks up the pipe fitting cylinder 17 into this cylinder, and carries out fitting of the pipe 18 upper limit. Moreover, two or more protruding lines 20 which arrange the piece 19 of two or more support lengthwise to the above-mentioned taper-like partial inside, and form inner **** of the diameter of Ochi also in the minor diameter cylinder lower inside of the piece upper part of support rather than piece of support inner **** are arranged lengthwise.

[0021] The actuation member 30 is stood up from the inside of the above-mentioned cylinder part material 10. Upper part energization is carried out by the coil spring 25 which was made to lay this actuation member to a piece of previous statement support 19 upper-limit side, and was made to carry out fitting of the lower part to protruding line 20 inside, and was prepared in the minor diameter cylinder. Stand up a stem from the minor diameter tubed piston 31 which carried out fitting into the minor diameter cylinder, and the stem fitting cylinder of a push-down head is made to attach to the upper limit section external surface of this stem, and fitting of the small stroke vertical movement of a major-diameter tubed piston is made free to the stem partial external surface of a stem fitting ***** lower part.

[0022] The minor diameter tubed piston 31 is good to stand up a cylinder part 32 like illustration, and to make this cylinder part attach into the lower part of a stem 33, and the stem 33 had the discharge valve 34 by the ball valve in the up inside, and attached the outward-flange-like wall 35 to the pars intermedia, and has stood up the short cylinder 36 from this flange-like wall periphery.

[0023] The push-down head 37 hangs the stem fitting cylinder 39 from the top wall 38 periphery section, opening of the end face is carried out to the stem fitting cylinder upper limit inside, a nozzle 40 is installed

horizontally in a top wall inferior surface of tongue, and this nozzle point is made to extend to the method of outside. Although the stem fitting cylinder is formed in a double cylinder in the example of illustration, one layer is sufficient as it. The stem fitting cylinder 39 lower part is made to insert possible [sliding] into the guidance cylinder 6 of the previous statement wearing cylinder 3. The inside of the lower part of the stem fitting cylinder 39 is used as the Ochi diameter 44, and is making the stem upper limit section attach to half the bottom of the upper part cylinder part part. Two or more 2nd high-pressure air flash grooves 41 were arranged lengthwise to this stem attachment partial inside, and this slot upper limit is prepared in it more highly than a stem upper limit side. **** 42 was made to attach at the tip of a nozzle, and the network 43 for foaming is stretched to the *****.

[0024] The foaming member fitting cylinder 45 made to insert in stem upper limit circles by using the lower part as a small outer-diameter cylinder part into the upper part of the above-mentioned stem fitting cylinder 39 is made to attach. The foaming member fitting partial die length of the fitting tubiform hole forms two or more foaming members in the die length which can fit in up and down in piles. The small outer-diameter cylinder part 46 made to insert in stem upper limit circles hangs the piece 48 of inhibition so that it may have an inward flange in the lower limit, a ball valve may be pushed up with the liquid which passed the discharge valve from this flange inferior surface of tongue and the flange hole 47 of the above-mentioned inward flange may not be blockaded. Between an inward flange and a discharge valve 34, the mixing chamber 49 with the high-pressure air which flowed out through between the liquid which passed the discharge valve, and the previous statement high-pressure air flash grooves 41 and stem up insides and small outer-diameter cylinder part 46 external surface is formed. This foaming member fitting cylinder may carry out fitting of the direct foaming member into the upper part of a stem fitting cylinder rather than may necessarily be required.

[0025] The foaming member 50 stretches and forms the foaming network 52 in the top face of the short cylinder 51.

[0026] A short cylinder outer diameter is made into an outer diameter with possible eye **** to the inside of the foaming member fitting cylinder 45, with the 1st operation gestalt which drawing 3 shows from drawing 1, a lower part foaming member is made to do a handstand, and the upper part foaming member is erected. Moreover, fitting of the foaming member 50 made to do a handstand in the lower part of the foaming member fitting cylinder 45 with the 2nd operation gestalt of drawing 4 is carried out, and the foaming member is erected in the above-mentioned fitting cylinder 45 upper part with the 3rd operation gestalt of drawing 5.

[0027] A container liner 61 side is high to each pars intermedia of the container liner 61 made fitting of the sliding of possible to the up external surface of a stem 33, and the outer case 62 which carried out fitting to the major-diameter cylinder inside, and connects and forms shape Itabe of a horizontal of the vertical both ends of the cylindrical-with stairway flange 63 with a low outer case 62 side in it, and the major-diameter tubed piston 60 is drilling two or more 1st open air absorption holes 64 in a part for the flange close to a container liner 61. Container liner 61 upper limit carries out the pressure welding of nothing and its tip to the closing-in elastic section extended a little to the method of the outside of a top airtightly to Ochi diameter 44 inside of the previous statement stem fitting cylinder 39 lower part. Moreover, two or more projected parts 65 are attached to the perpendicular cylinder part inside which hangs from an upper part horizontal plate section periphery. furthermore, between container liners 61 -- a small tea ceremony room -- spare time -- setting -- the stop cylinder 66 from upper horizontal-like Itabe -- standing up -- the above -- a small tea ceremony room -- the above-mentioned 1st open air absorption hole 64 is drilled in the horizontal-like Itabe part within spare time. This major-diameter tubed piston 60 makes a minimum the time of container liner 61 lower limit fitting in like drawing 1 to short cylinder 36 inside of the outward-flange-like wall 35 of a previous statement stem. Moreover, it is container liner 39a of the stem fitting cylinder 39 like drawing 2. Vertical movement only of a small stroke is enabled to a stem 33 by making the time of a lower limit fitting in airtightly to between the container liner 61 of a major-diameter tubed piston, and the stop cylinder 66, and sealing the 1st open air inhalation hole 64 into an upper limit. Two or more 1st high-pressure air flash grooves 67 are drilled in the stem partial external surface on which the container liner 61 of a major-diameter tubed piston slides in the range in which only this small stroke moves up and down, and when it descends to a minimum, the free passage of a slot lower limit and the inside of a major-diameter cylinder is intercepted by contact in a major-diameter tubed piston container liner lower limit and the outward-flange-like wall 35.

[0028] To the bottom half external surface of the container liner 61 of the above-mentioned major-diameter tubed piston 60, fitting of the 1st open air absorption valve element 70 is carried out. This valve element

forms a projection and a point in the method of the outside of ascending for the elastic outward-flange-like wall 72 of thin meat as a heavy-gage part from short cylinder 71 lower limit in which it was made to attach to the bottom half external surface of a container liner. Moreover, the pressure welding of the heavy-gage part top face is carried out to middle horizontal-like Itabe's inferior surface of tongue, and the 1st open air intake valve 73 is formed.

[0029] 80 is the 2nd open air absorption valve element made to attach to stop cylinder 8 external surface of the previous statement wearing cylinder 3, this valve element projects the elastic reverse skirt-board-like section 82 to the method of the outside of a top from the lower external surface of the cylinder part 81 which carried out [****] to the above-mentioned stop cylinder external surface, and it is major-diameter cylinder peripheral wall 11a about the point. A pressure welding is carried out to an up inside, and the 2nd open air intake valve 83 is formed. Moreover, from the lower inside of the cylinder part, as it hangs and drawing 1 shows the small cylinder 84 through an inward flange, it is in the condition which has the actuation member 30 in an upper limit, and it has prepared so that the small cylinder 84 inside may carry out a pressure welding watertight to the lower part perpendicular cylinder part external surface of the major-diameter tubed piston 60.

[0030] the cylindrical member which 90 stands up [member] from the bottom circles of the minor diameter cylinder 12, and makes the upper part insert into the stem 33 lower part -- it is -- the bottom ** -- two or more stoppers 91 made fitting of the vertical movement of possible to between the pieces 19 of support which arranged lengthwise to the previous statement cylinder lower inside are projected a little from the upper part. As for cylindrical member 90 lower limit, the valve element blockades the liquid absorption valve port of a minor diameter cylinder part for the liquid absorption valve element 93 at the time of nothing and this cylindrical member descent. The cylindrical member upper limit section is made to support from under possible [compulsive sliding by the protruding line inside which arranged this major diameter lengthwise to the stem inside] as a major diameter 92. Therefore, at the time of actuation member 30 descent, both a stem 33 and the cylindrical member 90 descend. Although only the actuation member 30 which stops a cylindrical member and has a stem 33 descends, and it will begin in case it is an actuation member rise and the cylindrical member 90 will also go up with a stem 33 if cylindrical member 90 lower limit blockades a liquid absorption valve port The cylindrical member 90 stops because a stopper 91 touches to coil spring 25 inferior surface of tongue, and only the actuation member 30 goes up henceforth. In addition, each part material except a coil spring 25, the ball valve of a discharge valve 34, and each network is good to really fabricate by synthetic-resin material, respectively.

[0031]

[Effect of the Invention] Consider this invention as a previous statement configuration, it stretches the foaming network 52 on the top face of the short cylinder 51, and forms the foaming member 50 in it, and it is long in the vertical direction in the tubiform hole part for the foaming member fitting, and two or more shot bubble member 50 is continuously formed in the die length which can fit in. Since fitting of an unit or two or more foaming members 50 is carried out into the tubiform hole part, it is easy by changing the number of the foaming members, and the sense of the foaming member right reverse etc. to consider as the pump container for bubble emission which can foam at the bubble of a bubble diameter suitable for an application.

[0032] Moreover, to the method of the outside of ascending, the elastic outward-flange-like wall 72 of the thin meat which used the point as the heavy-gage part is projected from short cylinder 71 lower limit in which it was made to attach to the flange lower part partial external surface of the container liner 61 of a major-diameter tubed piston. Carried out the pressure welding of this outward-flange-like wall point top face to this elastic outward-flange-like wall. Since the 1st open air intake valve 73 was formed in respect of the horizontal-like plate subordinate of the cylindrical-with stairway flange 63 Closing motion of the valve can be ensured by having prepared the heavy-gage part, while the elastic deformation of the outward-flange-like wall 72 was easy. To the perpendicular cylinder part inside which stands up from the horizontal plate section inner circumference which the elastic outward-flange-like wall point touches Since two or more projected parts 65 were attached, the 1st open air absorption valve element 70 which projects the elastic outward-flange-like wall 72 from short cylinder 71 tip to the method of the outside of ascending When fitting is carried out to the reverse sense to the container liner 61 of a major-diameter tubed piston, by the gap between the above-mentioned projected parts 65, it will have a function as an open air intake valve at all, and, therefore, the error of the valve element wearing can be discovered immediately.

[0033] Furthermore, the 2nd open air absorption valve element 80 projects and forms the elastic reverse skirt-board-like section 82 in the method of the outside of a top from the cylinder part 81 lower part. Set a

small gap between major-diameter cylinder peripheral wall insides, and the cylinder part 81 is made to attach to stop cylinder 8 external surface which hangs from the top wall of the wearing cylinder 3. Since the pressure welding of the elastic reverse skirt-board-like section tip was carried out to the up inside of a major-diameter cylinder peripheral wall and the 2nd open air intake valve 83 was formed Even if the high-pressure-ized air in a bottle object enters into the major-diameter cylinder upper part through the stoma 16 of a cylinder part material outward-flange end face by atmospheric temperature rise etc., there is no possibility that the 2nd open air absorption valve element 80 may fall out from the stop cylinder 8 with this high-pressure air.

[Translation done.]

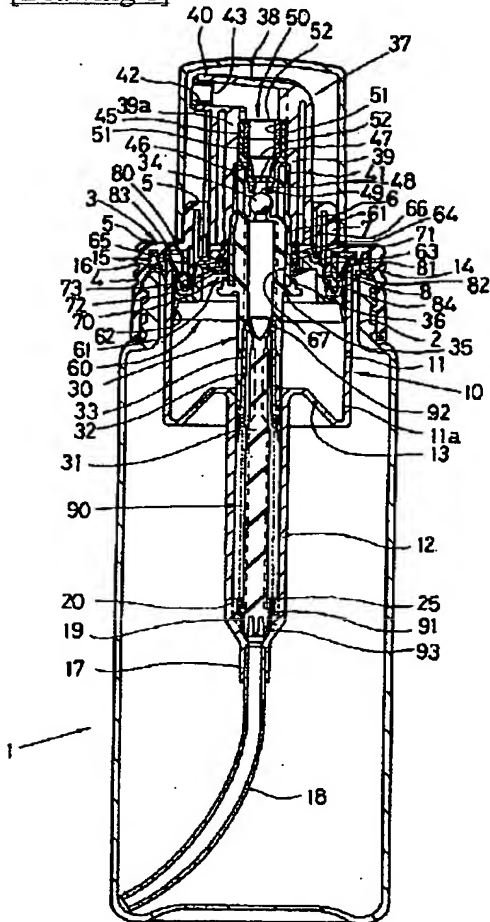
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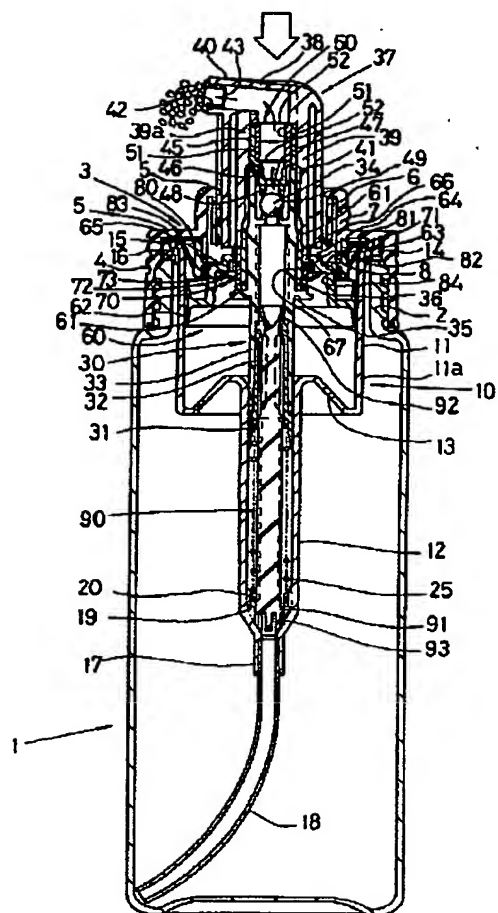
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DRAWINGS

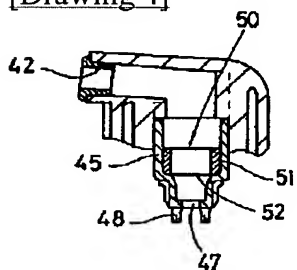
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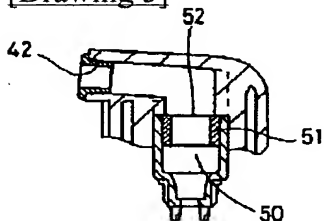
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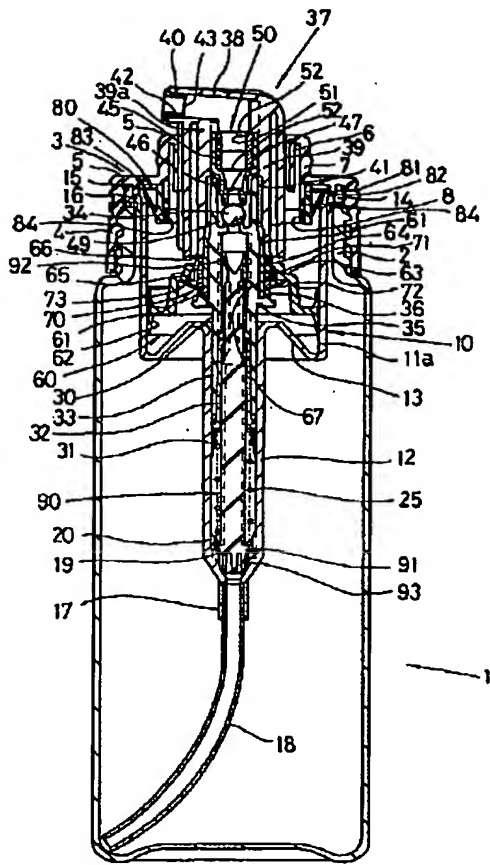
[Drawing 4]



[Drawing 5]



[Drawing 3]



[Translation done.]

(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開平8-230961

(43) 公開日 平成8年(1996)9月10日

(51) Int.Cl. ⁴	識別記号	庁内整理番号	F I	技術表示箇所
B 6 5 D 83/76			B 6 5 D 83/00	K
B 0 5 B 11/06			B 0 5 B 11/06	J
// B 0 5 B 1/02	1 0 1		1/02	1 0 1

審査請求 未請求 請求項の数3 F D (全 7 頁)

(21) 出願番号 特願平7-316086

(22) 出願日 平成7年(1995)11月8日

(31) 優先権主張番号 特願平6-332015

(32) 優先日 平6(1994)12月12日

(33) 優先権主張国 日本 (J P)

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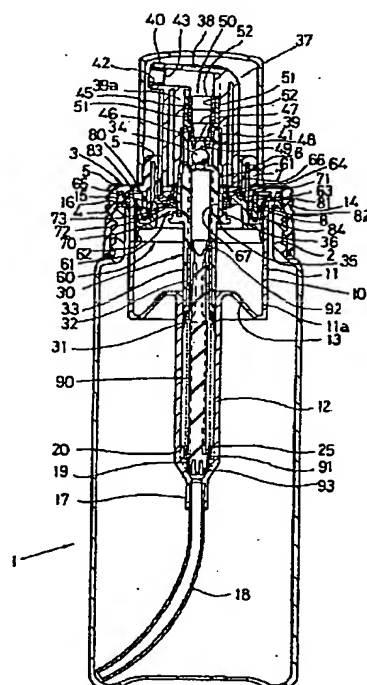
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(54) 【発明の名称】 泡放出用ポンプ容器

(57) 【要約】

【課題】 発泡部材嵌合用孔を上下方向へ長く設けて、その嵌合用孔内へ嵌合させる発泡部材の数、又正、倒立いずれかの向き、又その発泡部材嵌合位置を自由に選択可能とすることで、放出される泡の泡径を、泡の使用用途に応じた泡径とすることが可能な泡放出用ポンプ容器とした。

【解決手段】 上半を大径シリンダ11、下半を小径シリンダ12としたシリンダ部材10を容器体1内へ垂設し、該シリンダ部材内から、上方付勢状態に起立する作動部材30押下げて小径シリンダ12内液体および大径シリンダ内空気が作動部材のステム嵌合筒39上部内へ嵌合させた発泡部材50内を通り、発泡してノズル40から放出可能とした泡放出用ポンプ容器において、発泡部材50を短筒51上面へ発泡ネット52を張設して形成し、該発泡部材を、長く設けた発泡部材嵌合用筒孔内へ単数、又は複数、正、倒立いずれかで嵌合した。



【特許請求の範囲】

【請求項 1】 口頸部 2 を起立する容器体 1 と、その口頸部外面に周壁 4 を螺合すると共に、頂壁中央の開口周縁から案内筒 6 を垂下する装着筒 3 と、上記口頸部上端と装着筒の頂壁とで外向きフランジ 14 を挟持させて容器体内へ垂下する、上半を大径シリンダ 11、下半を小径シリンダ 12 とするシリンダ部材 10 と、上記大小両シリンダ内へ大径および小径の筒状ピストン 60、31 を嵌合させて上方付勢状態に起立する作動部材 30 とを有し、該作動部材は、小径筒状ピストン 31 から起立するステム 33 の上端部外面へ、ノズル 40 付き押下げヘッド 37 から、案内筒 6 内へ挿入されて垂下するステム嵌合筒 39 下部を嵌着すると共に、ステム上部外面へ小ストローク上下動自在に大径筒状ピストン 60 を嵌合させ、かつステム嵌合筒の上部内へ発泡部材 50 を固着させて形成し、作動部材押下げにより、小径シリンダ内液体がステム 33 を、又大径シリンダ内空気が大径筒状ピストン 60 およびステム嵌合筒 39 とステム外面との間をそれぞれ通って、更に共に発泡部材 50 通過により発泡してノズル 40 から放出され、又作動部材上昇で容器体内液体が小径シリンダ内へ、又案内筒とステム嵌合筒との間隙および大径筒状ピストンに設けた第 1 外気吸込み弁 73 を通って外気が大径シリンダ内へ流入可能となし、又容器体内負圧化で上記間隙と、案内筒と大径シリンダ周壁間に設けた第 2 外気吸込み弁と、シリンダ部材の外向きフランジに穿設した小孔 16 と、容器体口頸部と大径シリンダ間とを通過して外気が容器体内へ流入可能とした泡放出用ポンプ容器において、上記発泡部材 50 を、短筒 51 の上面に発泡ネット 52 を張設して形成すると共に、該発泡部材嵌合用の筒孔を上下に長く、複数発泡部材を上下に重ねて嵌合可能な長さに形成して、その筒孔内へ、単数又は複数の発泡部材を、正、倒立いずれかの状態で嵌着させたことを特徴とする泡発泡用ポンプ容器。

【請求項 2】 大径筒状ピストン 60 を、ステム 33 外面へ嵌合させた内筒 61 と大径シリンダ内面へ嵌合させた外筒 62 との各中間部に、内筒 61 側が高く、外筒 62 側が低い、階段付き円筒状フランジ 63 の上下両端の水平状板部を連結して形成し、第 1 外気吸込み孔 64 を内筒 61 に近接するフランジ部分に穿設しておき、フランジ 63 下方の大径筒状ピストンの内筒 61 部分外面へ嵌着させた短筒 71 下端から斜上外方へ、先端部を厚肉部とした薄肉の弾性外向きフランジ状壁 72 を突出して、該弾性外向きフランジ状壁と該外向きフランジ状壁先端部上面を圧接させた上記階段付き円筒状フランジの水平状板部下面とで、第 1 外気吸込み弁 73 を形成し、かつ上記弾性外向きフランジ状壁 72 先端部が接する水平板部内周から起立して、上記短筒 71 外面と対向する垂直筒部内面へ、複数の突部 65 を付設したことを特徴とする、請求項 1 記載の泡放出用ポンプ容器。

【請求項 3】 大径シリンダ周壁 11a 内面との間に小間

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隙をおいて、装着筒 3 の頂壁から係止筒 8 を垂下し、該係止筒外面へ嵌合させた筒部 81 下部から上外方へ弾性逆スカート状部 82 を突出して、該弾性逆スカート状部 82 と該逆スカート状部の先端部を圧接させた大径シリンダ周壁 11a の上部内面とで、第 2 外気吸込み弁 80 を形成したことを特徴とする、請求項 1 又は請求項 2 記載の泡放出用ポンプ容器。

【発明の詳細な説明】

【0001】

10 【発明の属する技術分野】本発明は、上半を空気用の大径シリンダ、かつ下半を液体用の小径シリンダとしたシリンダ部材を容器体内へ垂設し、上記大小の両シリンダ内へ大径および小径の筒状ピストンを嵌合させてシリンダ内から作動部材を起立する、泡放出用ポンプ容器に関する。

【0002】

【従来の技術】

【発明が解決しようとする課題】例えば、国際公開番号 W092/08657 号の泡放出用ポンプ容器が知られている。該容器は、上部を大径の空気シリンダに、下部を小径の液体シリンダに、それぞれ形成し、かつ空気シリンダ上部に容器体内への空気供給弁を設けたシリンダ部材を空気シリンダ上端面を蓋で密閉させて容器体内へ垂設固定すると共に、上記両シリンダ内へ嵌合させた大小両径ピストンから大小両径ステムを、小径ステム上部を大径ステム内へ嵌着させかつ大径ステムを蓋体に貫通させて起立し、大径ステム上端にノズル付き押下げヘッドを嵌合した作動部材を上方付勢させて設け、付勢に抗し押下げられた状態で押下げヘッド一部を蓋板一部へ螺合可能に設けたものである。

30 【0003】上記従来の容器は、ヘッド押下げとほぼ同時に小径ステム上端部内の吐出弁と押下げヘッドから垂下する嵌合筒内発泡部材との間に形成される混合室内へ、小径ステム内を通る液体と大小両ステム間を通る空気とが流入するが、当初混合室内に入る空気は圧縮が充分になされていないため、混合室内に入る液体量に比べて空気量が不足し、そのため当初放出される泡はその発泡が不完全となる欠点があった。

40 【0004】上記混合室内への空気流入に遅れて、液体が流入するよう設けることで上記欠点を除去した発明を、本出願人は特願平 6-136411 号をもって出願したが、該発明に係る泡放出用ポンプ容器においても尚改良すべきいくつかの問題点があることが判明した。

50 【0005】その一つは発泡部材であり、従来は上記押下げヘッドから垂下するステム嵌合筒の上部内へ嵌合させる短筒の上下両面ないし一面に発泡用ネットを張設していたが、上記容器使用により発泡させて液体使用すると、液体をそのまま使用する場合に比べて流動性が低下し、よって液体が無駄に流失することが少ない利点を有することから、従来使用されていなかった分野での使用

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も考慮されている。

【0006】従来泡放出用ポンプ容器から放出される泡は、きめの細かい小さい泡であることが望まれていたが、上記のように使用分野が拡大すると、例えば器物吹付け用洗剤であれば、さほど泡が小径であることを必要とせず、場合によっては更に泡径が大であることが用途に適する場合もある。その泡径は、主として上記発泡部材に張設した発泡用ネットで定めることが出来るが、従来は発泡部材を一個だけ嵌合させていたから、上記泡放出用ポンプ容器を各種用途にそれぞれ対応させるためには、

発泡される泡径を異にする発泡部材を多数用意することが必要となるものであった。

【0007】又既述特願平6-136411号にあっては、大径シリンダ内へ空気吸入させる第1外気吸込み弁を、ステム上部外面へ嵌合させた大径筒状ピストンの内筒下半へ筒部を嵌着させ、該筒部上端から下外方へ突出させた弾性スカート状部先端を、上記大径筒状ピストンのフランジが有する垂下壁内面へ圧接させて形成し、該第1外気吸込み弁への第1外気吸入路を、容器体口頸部へ嵌合させた装着筒の頂壁の中央部開孔周縁から垂下する案内筒内面と、該案内筒内へ上方から垂下する、押下げヘッドのステム嵌合筒外面との間、および上記大径筒状ピストンフランジの内筒側部分へ穿設した小孔とで形成していた。

【0008】しかしそのように形成すると、その第1外気吸込み弁の弁体を、筒部上端から下外方へ弾性スカート状部を突出して形成することとなる。時には不注意でその弁体の上下を逆に大径筒状ピストン内筒下半へ嵌合させることがあり、するとこの場合にも不完全作ら或る程度の逆止弁効果を生ずることとなるため、その発見が容易でない欠点があった。

【0009】又更に既述特願平6-136411号は、液体減少による容器体内負圧化防止用の第2外気吸込み弁の弁体を、装着筒頂壁の開孔縁から垂下する案内筒外面に嵌着させた筒部下端から外向きフランジ状壁を介して上外方へ突出する弾性逆スカート状壁先端を大径シリンダの上部内壁面へ弾性圧接させて形成し、又その第2吸込み弁を有する第2外気吸入路を、シリンダ部材上端の外向きフランジ基部に小孔を穿設しておき、該小孔を経由して既述案内筒とステム嵌合筒との間、および容器体口頸部内面と大径シリンダ外面との間の各間隙を連通させることで形成していた。

【0010】しかしこのような構成の場合、気温上昇によって容器体内空気が膨張して高圧化したとき、上記外向きフランジ基部の小孔を通して第2外気吸込み弁体の外向きフランジ上方空間内へ高圧空気が入り、その高圧化によりその弁体が装着筒の案内筒から離脱することがあった。

【0011】本発明は、発泡部材を嵌合させるステム嵌合筒上部の筒孔を上下に長く設けてその筒孔内へ単数又

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は複数の発泡部材を嵌合できるようにし、又その発泡部材を倒立状態に変えることで、比較的少数かつ同一構造の発泡部材により、多数泡径の発泡が得られるよう設けることを目的とし、上記目的と共に第1外気吸込み弁体の逆装着があっても、この場合は空気用大径シリンダの圧縮が不能となるよう設けてその弁体の逆装着を直ちに発見できるようにしたことであり、更に容器体内が気温上昇で高圧化しても、その高圧化により第2吸込み弁体が外れることがないように設けたことを目的とし、このようにして、収納液体および用途に応じた異なる泡径の泡放出用ポンプ容器にすることが容易であって、しかも故障し難い容器を提案するものである。

【0012】

【課題を解決するための手段】第1の手段として口頸部2を起立する容器体1と、その口頸部外面に周壁4を螺合すると共に、頂壁中央の開孔周縁から案内筒6を垂下する装着筒3と、上記口頸部上端と装着筒の頂壁とで外向きフランジ14を挟持させて容器体内へ垂下する、上半を大径シリンダ11、下半を小径シリンダ12とするシリンダ部材10と、上記大小両シリンダ内へ大径および小径の筒状ピストン60、31を嵌合させて上方付勢状態に起立する作動部材30とを有し、該作動部材は、小径筒状ピストン31から起立するステム33の上端部外面へ、ノズル40付き押下げヘッド37から、案内筒6内へ挿入されて垂下するステム嵌合筒39下部を嵌着すると共に、ステム上部外面へ小ストローク上下動自在に大径筒状ピストン60を嵌合させ、かつステム嵌合筒の上部内へ発泡部材50を固着させて形成し、作動部材押下げにより、小径シリンダ内液体がステム33を、又大径シリンダ内空気が大径筒状ピストン60およびステム嵌合筒39とステム外面との間をそれぞれ通って、更に共に発泡部材50通過により発泡してノズル40から放出され、又作動部材上昇で容器体内液体が小径シリンダ内へ、又案内筒とステム嵌合筒との間隙および大径筒状ピストンに設けた第1外気吸込み弁73を通して外気が大径シリンダ内へ流入可能となし、又容器体内負圧化で上記間隙と、案内筒と大径シリンダ周壁間に設けた第2外気吸込み弁と、シリンダ部材の外向きフランジに穿設した小孔16と、容器体口頸部と大径シリンダ間とを通して外気が容器体内へ流入可能とした泡放出用ポンプ容器において、上記発泡部材50を、短筒51の上面に発泡ネット52を張設して形成すると共に、該発泡部材嵌合用の筒孔を上下に長く、複数発泡部材を上下に重ねて嵌合可能な長さに形成して、その筒孔内へ、単数又は複数の発泡部材を、正、倒立いずれかの状態で嵌着させた。

【0013】第2の手段として、上記第1の手段の構成において、大径筒状ピストン60を、ステム33外面へ嵌合させた内筒61と大径シリンダ内面へ嵌合させた外筒62との各中間部に、内筒61側が高く、外筒62側が低い、階段付き円筒状フランジ63の上下両端の水平平板部を連結し

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て形成し、第 1 外気吸込み孔 64 を内筒 61 に近接するフランジ部分に穿設しておき、フランジ 63 下方の大径筒状ピストンの内筒 61 部分外面へ嵌着させた短筒 71 下端から斜上外方へ、先端部を厚肉部とした薄肉の弾性外向きフランジ状壁 72 を突出して、該弾性外向きフランジ状壁と該外向きフランジ状壁先端部上面を圧接させた上記階段付き円筒状フランジの水平平板部下面とで、第 1 外気吸込み弁 73 を形成し、かつ上記弾性外向きフランジ状壁 72 先端部が接する水平平板部内周から起立して、上記短筒 71 外面と対向する垂直筒部内面へ、複数の突部 65 を付設した。

【0014】第 3 の手段として、上記第 1 の手段の構成、又は第 2 の手段の構成において、大径シリンダ周壁 11a 内面との間に小間隙を置いて、装着筒 3 の頂壁から係止筒 8 を垂下し、該係止筒外面へ嵌合させた筒部 81 下部から上外方へ弾性逆スカート状部 82 を突出して、該弾性逆スカート状部 82 と該逆スカート状部の先端部を圧接させた大径シリンダ周壁 11a の上部内面とで、第 2 外気吸込み弁 80 を形成した。

【0015】

【作用】実験によれば、図 1 から図 3 が示す実施形態のように、発泡部材嵌合筒 45 内へ、短筒 51 上面へ発泡ネット 52 を張設した発泡部材 50 を上方へ、又同様に設けた発泡部材を倒立させて下方へ、それぞれ嵌合させた場合は、細かい均等な泡の発泡を得ることが出来、図 4 のように、倒立により短筒下面に発泡ネット 52 を有する発泡部材 50 を一箇だけ発泡部材嵌合筒 45 の下部内へ嵌合させた場合は、中径泡の発泡を得ることが出来、図 5 のように、短筒上端面へ発泡ネット 52 を張設した発泡部材 50 を一箇だけ上記嵌合筒 45 の上部内へ嵌合させた場合は大径泡の発泡を得ることが出来た。又図 4 の発泡部材 50 嵌合位置を順次上方へ移動させることで、又図 5 の発泡部材 50 を上記嵌合筒上端から順次下方へ移動させることで、図 4 実施形態による泡径と図 5 実施形態による泡径との範囲で徐々に泡径を変化させることが出来た。ノズル先端内に口筒 42 を嵌着させ、該内筒に発泡用ネット 43 を張設することで、上記各実施形態において放出される泡径を更に僅かに小径化し、又均等化することが出来た。

【0016】図 2 が示すように、作動部材 30 押下げの際、第 1 外気吸込み弁 73 は閉塞したまま下降して大径シリンダ内を加圧するが、第 1 外気吸込み弁 70 が倒立状態で嵌合されていると、その弁体の弾性外向きフランジ状壁 72 は大径筒状ピストン 60 の垂直筒部内面の突部 65、65 に接してその弁閉塞が不能となるため、上記大径シリンダ内の加圧が不能となり、そのためその加圧の手応えがなく、よって第 1 外気吸込み弁体の不具合を直ちに発見できる。

【0017】第 2 外気吸込み弁 80 は、大径シリンダ 11 周壁内面との間に小間隙を置いて装着筒 3 の頂壁から垂下する係止筒 8 外面へ筒部 81 を嵌合させてあるから、気

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温上昇による容器体内高圧化によってシリンダ部材の外向きフランジ基端に穿設した小孔 16 を通って上記筒部 81 上部と大径シリンダ上部との間隙内に高圧空気が入っても、その間隙は狭く、よって上記筒部を係止筒 8 へかた嵌めしておくことで、その第 2 外気吸込み弁 80 の脱落を容易に防止できる。

【0018】

【発明の実施の形態】 1 は口頸部 2 を起立する容器体である。

10 【0019】上記口頸部外面へは、装着筒 3 の周壁 4 を螺合させている。該装着筒は上記周壁を頂壁 5 周縁から垂下し、その頂壁中央部を開口してその開口周縁から内面に外気流入溝を有する案内筒 6 を垂下する。その頂壁 5 はその外周部を残してその内方部分を起立筒 7 を介して隆出し、かつその起立筒下端から係止筒 8 を垂下している。

20 【0020】10 はシリンダ部材で、上半を空気用の大径シリンダ 11、下半を液体用の小径シリンダ 12 としてそれ等両シリンダをフランジ 13 で連結し、大径シリンダの周壁 11a 上端に付設した外向きフランジ 14 を容器体口頸部の上端面と装着筒 3 の頂壁外周部とで挟持させている。外向きフランジ外周からは間隙形成筒 15 を起立し、かつ外向きフランジ基端部に小孔 16 を穿設している。尚上記間隙形成筒 15 を、装着筒頂壁外周部から垂下する小筒と装着筒周壁の上部とで挟持させている。小径シリンダ下端は下内方へテーパ状に小径化し、かつその下端から吸上げパイプ嵌合筒 17 を垂下し、該筒内へ吸上げパイプ 18 上端を嵌合させている。又上記テーパ状部分内面へは複数支持片 19 を縦設し、かつその支持片上方の小径シリンダ下部内面にも支持片内端円よりも大内径の内端円を形成する複数突条 20 を縦設している。

30 【0021】上記シリンダ部材 10 内からは作動部材 30 を起立する。該作動部材は、既述支持片 19 上端面へ載置させ、かつ突条 20 内面へ下部を嵌合させて小径シリンダ内に設けたコイルスプリング 25 により上方付勢させて、小径シリンダ内へ嵌合させた小径筒状ピストン 31 からステムを起立し、該ステムの上端部外面へ、押下げヘッドのステム嵌合筒を嵌着させ、又ステム嵌合筒直ぐ下方のステム部分外面へ、小ストローク上下動自在に大径筒状ピストンを嵌合させている。

40 【0022】小径筒状ピストン 31 は図示のように筒部 32 を起立して該筒部をステム 33 の下部内へ嵌着させるとよく、ステム 33 は上部内面に玉弁による吐出弁 34 を有し、又その中間部に外向きフランジ状壁 35 を付設し、該フランジ状壁外周から短筒 36 を起立している。

50 【0023】押下げヘッド 37 は、頂壁 38 外周部からステム嵌合筒 39 を垂下し、そのステム嵌合筒上端内面に基端を開口させて頂壁下面にノズル 40 を横設し、該ノズル先端部を外方へ延長させている。ステム嵌合筒は図示例で二重筒に形成しているが一重でもよい。そのステム嵌合

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筒39下部は既述装着筒3の案内筒6内へ摺動可能に挿入させている。ステム嵌合筒39の下部内は大内径部44とし、その上方筒部分下半へステム上端部を嵌合させている。該ステム嵌合部分内面には複数の第2高圧空気流出溝41を縦設し、該溝上端は、ステム上端面よりも高く設けている。ノズル先端には口筒42を嵌合させ、その口筒内端に発泡用ネット43を張設している。

【0024】上記ステム嵌合筒39の上部内へは下部を小外径筒部としてステム上端部内へ挿入させた発泡部材嵌合筒45を嵌合させている。その嵌合筒孔の発泡部材嵌合部分長さは、複数の発泡部材を上下に重ねて嵌合可能な長さに形成する。ステム上端部内へ挿入させた小外径筒部46は、その下端に内向きフランジを有し、該フランジ下面から吐出弁を通過した液体により玉弁が押上げられて上記内向きフランジのフランジ孔47を閉塞することがないよう、阻止片48を垂下する。内向きフランジと吐出弁34との間には、吐出弁を通過した液体と、既述高圧空気流出溝41およびステム上部内面と小外径筒部46外面との間を通して流出した高圧空気との混合室49を設ける。該発泡部材嵌合筒は必ずしも必要ではなく、直接発泡部材をステム嵌合筒の上部内へ嵌合させてもよい。

【0025】発泡部材50は、短筒51の上面に発泡ネット52を張設して形成する。

【0026】短筒外径は発泡部材嵌合筒45の内面へかた嵌め可能な外径とし、図1から図3が示す第1実施形態では下方発泡部材を倒立させ、上方発泡部材は正立させている。又図4の第2実施形態では発泡部材嵌合筒45の下部内に倒立させた発泡部材50を嵌合させ、又図5の第3実施形態では上記嵌合筒45上部内に発泡部材を正立させている。

【0027】大径筒状ピストン60は、ステム33の上部外面へ摺動可能に嵌合させた内筒61と、大径シリンダ内面へ嵌合させた外筒62との各中間部に、内筒61側が高く、外筒62側が低い、階段付き円筒状フランジ63の上下両端の水平状板部を連結して形成し、内筒61に近接するフランジ部分に複数の第1外気吸込み孔64を穿設している。内筒61上端はやや上外方へ拡開する肉薄弾性部となし、その先端を既述ステム嵌合筒39下部の大内径部44内面へ気密に圧接させている。又上方水平板部外周から垂下する垂直筒部内面には複数の突部65を付設している。更に内筒61との間に小間隙をおいて、上方の水平状板部からは係止筒66を起立し、上記小間隙内の水平状板部部分に上記第1外気吸込み孔64を穿設している。該大径筒状ピストン60は、図1のように既述ステムの外向きフランジ状壁35の短筒36内面へ内筒61下端が嵌合したときを下限とし、又図2のようにステム嵌合筒39の内筒39a下端が大径筒状ピストンの内筒61と係止筒66との間へ気密に嵌合して第1外気吸入孔64を密閉したときを上限として、小ストロークだけ、ステム33に対して上下動可能とする。該小ストロークだけ上下動する範囲で大径筒状ピス

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トンの内筒61が摺動するステム部分外面に、複数の第1高圧空気流出溝67が穿設してあり、下限まで下降したとき、その溝下端と大径シリンダ内との連通は大径筒状ピストン内筒下端と外向きフランジ状壁35との接触で遮断される。

【0028】上記大径筒状ピストン60の内筒61下半外面へは、第1外気吸込み弁体70を嵌合させる。該弁体はその内筒下半外面へ嵌合させた短筒71下端から斜上外方へ薄肉の弾性外向きフランジ状壁72を突出しかつ先端部を厚肉部として形成する。又その厚肉部上面を中間水平状板部の下面へ圧接させて、第1外気吸込み弁73を形成している。

【0029】80は既述装着筒3の係止筒8外面へ嵌合させた第2外気吸込み弁体で、該弁体は、上記係止筒外面へかた嵌めさせた筒部81の下部外面から上外方へ弾性逆スカート状部82を突出して、その先端部を大径シリンダ周壁11aの上部内面へ圧接させて第2外気吸込み弁83を形成する。又その筒部の下部内面からは、内向きフランジを介して小筒84を垂下し、図1が示すように作動部材30が上限にある状態で、その小筒84内面が大径筒状ピストン60の下方垂直筒部外面へ水密に圧接するよう設けている。

【0030】90は小径シリンダ12の底部内から起立して上部をステム33下部内へ挿入させる棒状部材で、その下端や上方から、既述シリンダ下部内面に縦設した支持片19間へ上下動可能に嵌合させた複数ストッパ91を突出する。棒状部材90下端は液体吸込み弁体93をなし、該棒状部材下降時にその弁体が、小径シリンダ部の液体吸込み弁孔を閉塞する。棒状部材上端部は大径部92として、該大径部をステム内面に縦設した突条内面で強制摺動可能に抱持させている。よって作動部材30下降時に、ステム33と棒状部材90とが共に下降して、棒状部材90下端が液体吸込み弁孔を閉塞すると、棒状部材は停止してステム33を有する作動部材30だけが下降し、又作動部材上昇の際は、始めステム33と共に棒状部材90も上昇するが、ストッパ91がコイルスプリング25下面へ接することで棒状部材90は停止し、以後作動部材30だけが上昇する。尚、コイルスプリング25と吐出弁34の玉弁と各ネットとを除く各部材は、それぞれ合成樹脂材で一体成形するとよい。

【0031】

【発明の効果】本発明は既述構成とするもので、発泡部材50を短筒51の上面に発泡ネット52を張設して形成しておき、又その発泡部材嵌合用の筒孔部分を、上下方向に長く、複数発泡部材50を連続して嵌合可能な長さに形成して、その筒孔部分内へ単数又は複数の発泡部材50を嵌合させるから、その発泡部材の数およびその発泡部材正逆の向きを変えること等により、用途に適した泡径の泡を発泡できる泡放出用ポンプ容器とすることが容易である。

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【0032】又大径筒状ピストンの内筒61のフランジ下方部分外面へ嵌着させた短筒71下端から斜上外方へ、先端部を厚肉部とした薄肉の弾性外向きフランジ状壁72を突出して、該弾性外向きフランジ状壁と該外向きフランジ状壁先端部上面を圧接させた、階段付き円筒状フランジ63の水平状板部下面とで第1外気吸込み弁73を形成したから、その外向きフランジ状壁72の弾性変形が容易であると共に厚肉部を設けたことでその弁の開閉を確実とすることが出来、その弾性外向きフランジ状壁先端部が接する水平板部内周から起立する垂直筒部内面へ、複数の突部65を付設したから、短筒71先端から弾性外向きフランジ状壁72を斜上外方へ突出する第1外気吸込み弁体70を、大径筒状ピストンの内筒61へ逆向きに嵌合させた場合は、上記突部65間の間隙によって外気吸込み弁としての機能を全く有しないこととなり、よってその弁体装着の誤りを直ちに発見することが出来る。

【0033】更に第2外気吸込み弁体80は、筒部81下部から上外方へ弾性逆スカート状部82を突出して形成し、その筒部81を、大径シリンダ周壁内面との間に小間隙において、装着筒3の頂壁から垂下する係止筒8外面へ嵌着させ、弾性逆スカート状部先端を大径シリンダ周壁の

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上部内面へ圧接させて第2外気吸込み弁83を形成したから、気温上昇等で高圧化した容器体内空気がシリンダ部材外向きフランジ基端の小孔16を通して大径シリンダ上部内へ入っても、該高圧空気により第2外気吸込み弁体80が係止筒8から脱落するおそれはない。

【図面の簡単な説明】

【図1】 本発明容器の縦断面図である。

【図2】 図1容器を作動部材押下げ状態で示す縦断面図である。

10 【図3】 図1容器を作動部材上昇状態で示す縦断面図である。

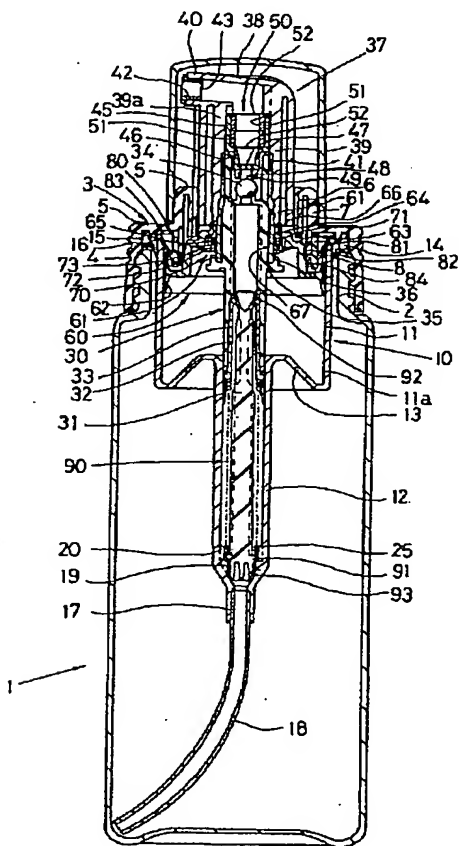
【図4】 第2実施形態で示す、容器要部の断面図である。

【図5】 第3実施形態で示す、容器要部の断面図である。

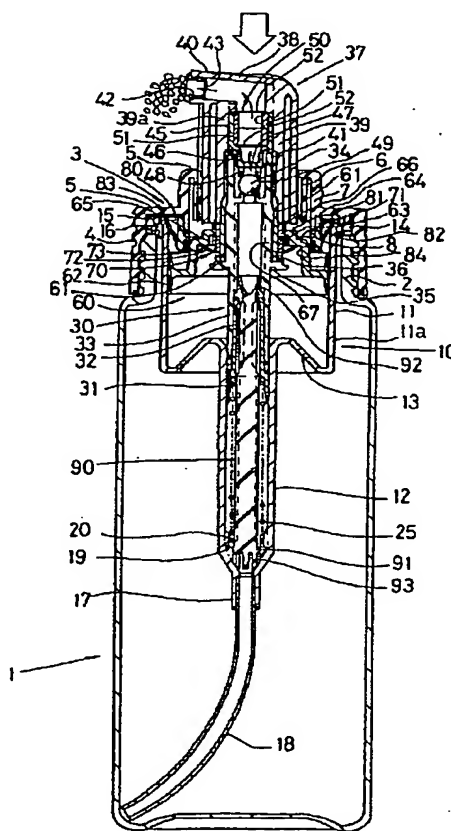
【符号の説明】

- | | | | |
|----|--------|------|--------|
| 3 | 装着筒 | 8 | 係止筒 |
| 10 | シリンダ部材 | 30 | 作動部材 |
| 33 | ステム | 37 | 押下げヘッド |
| 20 | 50 | 発泡部材 | |

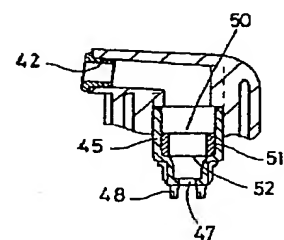
【図1】



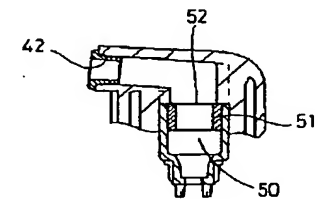
【図2】



【図4】



【図5】



【図 3】

